MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019/2020

TIC3251 – DECISION SUPPORT SYSTEMS

(All sections / Groups)

2nd MARCH 2020
2.30 PM – 4.30 PM
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 2 pages with 5 Questions only excluding the cover page

2. Attempt **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

QUESTION 1

(a) According to Simon (1977), decision-making processes fall along a continuum that ranges from highly structured to highly unstructured decisions. Describe **ONE** activity that requires a decision maker to implement the following types of decisions. [2 + 2 + 2 marks]

(i) Highly structured decision.
(ii) Semi-structured decision.
(iii) Unstructured decision.

(b) How does decision style of an *autocratic* decision maker differ from a *democratic* decision maker? [4 marks]

QUESTION 2

(a) Provide a general definition for the following terms that are used in linear programming. [1 + 1 marks]
(i) Decision variable.
(ii) Result variable.

(b) Factory XYZ specializes in producing two different shapes of cookies, namely round cookies and square cookies. Both types of cookies require eggs and butter only. In order to produce one piece of round cookie, 3 eggs and 1 block of butter are needed while to produce one piece of square cookie, 1 egg and 2 blocks of butter are needed. The factory's inventory has a total supply of 100 eggs and 100 blocks of butter. A round cookie generates a profit of RM5.00 and a square cookie generates a profit of RM6.00. Factory XYZ intends to maximize profit from the sales of round and square cookies.

Suppose that linear programming is recommended to model Question 2(b) for decision making.

(i) Based on Question 2(b), identify the decision variable(s). [1 mark]

(ii) Based on Question 2(b), write the objective function for profit. [3 marks]

(iii) Based on Question 2(b), list the constraints. [4 marks]

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QUESTION 3

(a) Why is simulation considered as a *descriptive* rather than a normative decision theory model? [2 marks]

(b) Define *ordinal* variable and *nominal* variable. Provide **ONE** example of an *ordinal* variable and **ONE** example of a *nominal* variable. [2 marks]

(c) *k*-fold cross-validation is one of the most popular estimation methodologies used for classification-type data mining models. [2 + 4 marks]

(i) Define another term for *k*-fold cross-validation.

(ii) Describe the steps to implement *k*-fold cross-validation on a set of complete data.

QUESTION 4

(a) Performance dashboard is used in business intelligence platform. Describe **TWO** challenges in designing a good dashboard. [2 marks]

(b) A functioning Knowledge Management System (KMS) follows six steps in a KMS cycle to ensure that knowledge in KMS is dynamically refined over time. List and describe the **SIX** steps in a KMS cycle. [6 marks]

(c) How does demonstration of a prototype for a proposed decision support system help to increase the proposal's chance of acceptance by a group of decision makers? [2 marks]

QUESTION 5

(a) Describe the Turing Test and under what circumstances a computer is said to be *intelligent.* [3 marks]

(b) Suppose that organization ABC has decided to store its data using independent data marts instead of a data warehouse. As an IT manager, what are the list of steps that your department should undertake to ensure effective and efficient management of an organization's data in independent data marts. [3 marks]

(c) Describe **TWO** popular approaches for inferencing that are implemented in expert systems. [4 marks]

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